Geometry Honors Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Logic Test Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block \_\_\_\_\_\_\_\_\_

**Circle the correct answer to each of the following**

1. What is the converse of the statement “If , then ”?

a) If , then . b) If , then .

c) If , then . d) none of these

2. What is the conclusion of the statement, “If today is Tuesday, then tomorrow is Wednesday”?

a) today is not Tuesday b) today is Wednesday

c) today is Tuesday d) tomorrow is Wednesday

3. The transitive property of equality states, “if w = r and r = x, then \_\_\_\_\_\_\_\_\_\_.”

a) w = x b) r = r c) x = r d) all of these

4. Which of the following could be a reason stated in a proof?

a) definition b) given c) postulate d) all of these

5. Write the statement, “a cat likes tuna,” in if-then form.

a) If an animal likes tuna, then it is a cat. b) If an animal is a cat, then it likes tuna.

c) If an animal does not like tuna, then it isn’t a cat. d) none of these

6. Write the following conditional statement in if-then form. *Sharks are fish.*

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Write the requested alternate form of each given conditional**

7. If I graduate on time, then I will get the job.

Inverse: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. If the two angles sum up to 90o, then they are complementary angles.

Converse: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. If I go to the pep rally, then I will cheer for the football team.

Contrapositive: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. I will give 5 additional points on this test, if every student gets an A on this test.

Inverse: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Draw a Venn Diagram for each of the following**

11. If you are a dancer, then you are graceful. 12. Some dogs are aggressive animals

**Write the given conditionals in symbolic form**

Let p and q represent the statements: p = two lines are perpendicular

q = two lines form 90o

13. If two lines are perpendicular, then they form 90o angles. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. If two lines do not form 90o angles, then they are not perpendicular. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Using the Law of Syllogism and the Law of Detachment, what conclusion, if any, can be formed from the given statements?**

15. If I sleep on the couch, then I don’t sleep well.

I slept well. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

16. If you went to homecoming, then you had a blast.

Becky went to homecoming. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. If two non-adjacent angles are formed by intersecting lines, then they are vertical angles.

A and B are non-adjacent angles formed by intersecting lines. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. If you are a soccer player, then you are an athlete. If you are an athlete, then you are fit.

You are a soccer player. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. If you are a good student, then you get good grades. If you get good grades, then you will get a college scholarship.

I am not a good student. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Match each statement to its correct property. Use each property only once.**

|  |  |  |  |
| --- | --- | --- | --- |
| \_\_\_\_20. | 3(4x – 5) = 3(4x) – 3(5) | A | Substitution property of Equality |
| \_\_\_\_21. | If GL = BV and BV = RT, then GL = RT. | B | Distributive property of Equality |
| \_\_\_\_22. | If XY = AB, then AB = XY. | C | Transitive property of Equality |
| \_\_\_\_23. | (a + b) + c = a + (b + c) | D | Symmetric property of Equality |
| \_\_\_\_24. | If and , then . | E | Subtraction property of Equality |
| \_\_\_\_25. | If x =10, then 5x = 5(10). | F | Reflexive property of Congruency |
| \_\_\_\_26. |  | G | Multiplication property of Equality |
| \_\_\_\_27. | If AB + BC = XY, then AB + BC – BC = XY – BC. | H | Associative property of Addition |
| **Use the following terms for problems #28 – 38. Some terms may not be used.** | | | |
| **Complementary Angles Angle Bisector Midpoint**  **Segment Addition Postulate Right Angles Angle Addition Postulate**  **Obtuse Angles Definition of Congruence of Angles Vertical Angles**  **Segment Bisector Linear Pair Perpendicular Lines** | | | |

**Use the diagram to help state the property, theorem, or postulate associated with the given statement.**

A

B

C

D

E

F

G

O

6

7

1

2

3

4

5

28. If , then is right . \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

29. = 180 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

31. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

32. + = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

33. If , then bisects . \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

34. If and are complimentary, then . \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

35. If O is the midpoint of , then .\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

36. If = 90o, then is a right angle. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

37. If , then . \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

38. If bisects , then . \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Determine if the following conclusions are valid based on the given statement. If invalid, provide a counter-example.**

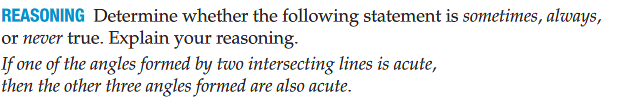
39. Given: 1 and 2 are adjacent angles.

Conclusion: 1 and 2 are a linear pair. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

40. Given: D is a point on the interior of <ABC, and is perpendicular to .

Conclusion: ABD DBC \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

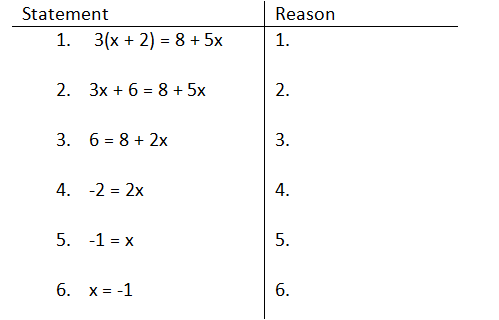
**41.**

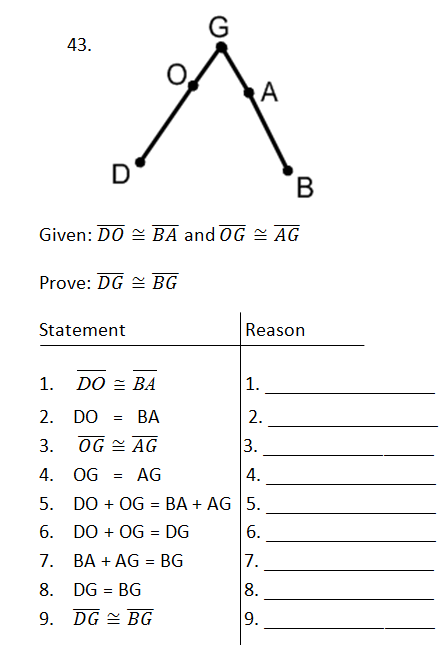


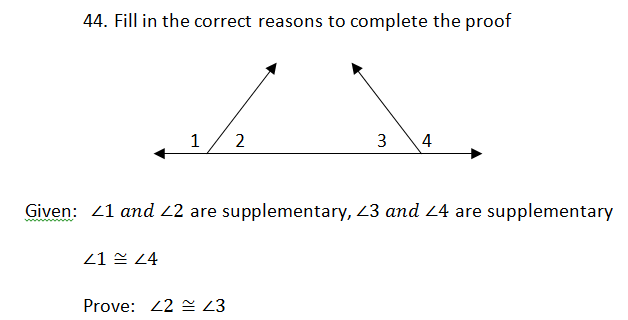
**Write a 2 column proof for each of the following**

42. Given: 3(x + 2) = 8 + 5x

Prove: x = -1







|  |  |
| --- | --- |
| **Statement** | **Reason** |
| 1. <1 and <2 are supplementary   <3 and <4 are supplementary  <1 <4 | a. |
| 1. m<1 + m<2 = 180   m<3 + m<4 =180 | b. |
| 1. m<1 + m<2 =m<3 + m<4 | c. |
| 1. m<1 = m<4 | d. |
| 1. m<1 - m<1 +m<2 =m<4 - m<4+m<3 | e. |
| 1. m<2 = m<3 | f. |
| 1. <2 <3 | g. |